



# Review: Personal Development and Intellectual Biography: The Case of Robert Boyle The Early Essays and Ethics of Robert Boyle by Robert Boyle; John T. Harwood

## Citation

Shapin, Steven. 1993. Review: Personal development and intellectual biography: the case of Robert Boyle the early essays and ethics of Robert Boyle by Robert Boyle; John T. Harwood. *The British Journal for the History of Science* 26(3): 335-345.

## Published Version

doi:10.1017/S0007087400031083

## Permanent link

<http://nrs.harvard.edu/urn-3:HUL.InstRepos:10521835>

## Terms of Use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA>

## Share Your Story

The Harvard community has made this article openly available.  
Please share how this access benefits you. [Submit a story](#).

[Accessibility](#)

## Essay review

### Personal development and intellectual biography: the case of Robert Boyle

Robert Boyle, *The Early Essays and Ethics of Robert Boyle*, edited and annotated, with an Introduction by John T. Harwood. Carbondale and Edwardsville: Southern Illinois University Press, 1991. Pp. lxix + 330. ISBN 0-8093-1522-X. \$39.95.

When the eighteen-year-old Robert Boyle first took possession of his manor house in Stalbridge in 1645, he was a young man without a vocation. He had been to Eton, where he had learnt some Latin and French, and had been on the Grand Tour, where he had seen all the usual unusual things. Two years earlier he had lost his father, the great Earl of Cork, and had almost lost the means to live as a leisured gentleman. The Irish Rebellion of 1641 had temporarily cut off all the Boyles from their enormous income in land rents. The bad news arriving while Robert was still touring the Continent, he had discreetly turned aside his father's suggestion that he seek a military post in the Low Countries, and for two years had probably been obliged to live off his tutor's credit in Geneva, waiting for funds to arrive and the Irish rebels to be reduced. As a younger son, Robert knew he would not inherit the Cork earldom, and briefly mulled over the possibility that he might be obliged 'honorably [to] gaine my living' in some useful profession. But matters soon improved: the important Dorset estate had been secured to his personal possession and the flow of funds from Ireland resumed, initially a trickle, increasing to full spate by the Restoration. Returning to the British Isles in the middle of 1644, Robert stayed for some months with his intellectually formidable older sister Katherine, Lady Ranelagh, in her Holborn house, where he met a circle of parliamentary and allied thinkers (including John Milton, Samuel Hartlib, John Dury, and Benjamin Worsley), some of whom had very pronounced ideas about what a young man of means and moral disposition might usefully do with his life.

Proceeding to Stalbridge the following year, Boyle set himself up as an uncommon sort of country gentleman. While he evidently accepted the customary gentlemanly obligations to visit and be visited, to hunt, hawk and fish, young Robert let it be known that he disapproved of these patterns as the be-all and end-all of gentry. He would, of course, be a gentleman of means and leisure – and something else still to be decided. Boyle's Stalbridge residence lasted from 1645 to 1655, and during this period he experimented incessantly with the constitution, justification and dissemination of patterns for a happy and virtuous life. How was one to acquit both Christian and gentlemanly duties? What were one's obligations to God, one's self, and the commonwealth? In general terms, what was the legitimate nature of vocation, and, in particular, what was the nature of a legitimate vocation for *him*?

Thanks to the superb editorial work of John T. Harwood, historians now have effective access to a range of ethical and devotional essays Boyle produced at Stalbridge from c. 1645

to c. 1650. These include the 60,000-word tract known as *The Aretology* (Royal Society Boyle Papers Vol. 195), which has already been so importantly put to use in James R. Jacob's interpretations of the ideological roots of Boyle's natural philosophy,<sup>1</sup> as well as shorter religious essays on sin and piety, and experiments in moral discipline: 'The Doctrine of Thinking', 'The Dayly Reflection', and 'Of Time and Idleness'.<sup>2</sup> *The Aretology or Ethicall Elements* canvasses and assesses ideas about the nature, bases, and means of inculcating virtue. Although it was not evidently intended for publication, neither was it written in a confessional mode: an imagined 'Reader' is repeatedly invoked and much of the exercise is concerned with finding effective inducements to virtue which presuppose a communicative exercise.

It is difficult to do justice either to Harwood's service to students of early modern science, or to the heroic labour involved in producing richly annotated diplomatic editions of these writings. Perhaps only those who have put in some time in the Royal Society wrestling with the crabbed and crowded handwriting of *The Aretology*, and who have had three pages of transcription and a headache to show for a day's work, can fully appreciate the editor's diligence and dedication to accuracy. This volume also includes an important fifty-page editorial introduction locating Boyle's early essays in the general context of mid-seventeenth-century Protestant apologetic and ethical writing. Harwood is an extremely able literary historian, one of whose recent concerns has been to interpret the writings of early modern natural philosophers as situated rhetorical practices. Unlike many of those taking the so-called 'rhetorical turn' in the history of science, Harwood knows a lot about rhetoric. He wants to know where natural philosophers' writing (and reading) practices came from in the culture and what these practices were intended to achieve in the context in which they were used. He deconstructs literary practices not merely – as is increasingly the fashion – to display their deconstructability, but to recruit the results of his analyses for cultural historical projects. This is literary history of science in its most constructive mood.

These materials have both particular and general significance for historians of science. Boyle was between eighteen and twenty-three years of age when these essays were produced. It was not until 1660, when he was thirty-three, that he published a scientific tract – *New Experiments Physico-Mechanical touching the Spring of the Air* – under his own name.<sup>3</sup> Taken together with the autobiographical essay *Philaretus* dating from the same period,<sup>4</sup> one might expect these earlier writings to offer some solid and significant answers to the questions 'Why did Boyle become a scientist?', 'What motivated him to the particular scientific views which he later propagated and with which he affiliated himself?'

1 Especially James R. Jacob, *Robert Boyle and the English Revolution: A Study in Social and Intellectual Change*, New York: Burt Franklin, 1977, especially chs. 2–3; 'The ideological origins of Robert Boyle's natural philosophy', *Journal of European Studies* (1972), 2, 1–21; 'Boyle's atomism and the Restoration assault on pagan naturalism', *Social Studies of Science* (1978), 8, 211–33.

2 Harwood also includes as an appendix Boyle's meditation on 'Joseph's Mistress', evidently intended for inclusion in *Occasional Reflections*, and a partial catalogue of Boyle's library.

3 An essay commending openness in the communication of medical receipts (written in 1647) was anonymously published in 1655: see Margaret E. Rowbottom, 'The earliest published writings of Robert Boyle', *Annals of Science* (1950), 6, 376–89.

4 Boyle, 'An account of Philaretus during his minority', printed in R. E. W. Maddison, *The Life of the Honourable Robert Boyle F.R.S.*, London: Taylor & Francis, 1969, 2–45.

Nevertheless, here and in other connections, I want to caution against certain well-entrenched and commonsensical procedures in the history-of-ideas and biographical genres which can result in questionable *over-interpretation* of materials like these. And I want to suggest alternative ways of viewing evidence of personal development which may have some general significance for the biographical genre.

For all the considerable interest of these materials, it needs to be stressed that they do *not* effectively support an answer to developmental questions about why Boyle became a natural philosopher, still less why he became an experimental or corpuscular natural philosopher. These are not the records of physical experiments but of youthful experiments in constructing and justifying moral identity. A *number* of identities and repertoires of moral justification were being canvassed here and in related early writings. (If one were so minded, there would be no problem at all in spotting a series of 'inconsistencies' in these materials.) And, while it is technically possible to ransack these writings for signs of later scientific views, such indications are sufficiently sparse to give the historian pause in treating the essays matter-of-factly as tokens of, so to speak, 'important developments which we know came later'. Jacob, for example, has pointed to passages in *The Aretology* and associated early manuscripts that commended natural knowledge for its utility to ethics (pp. 55, line 34 to 56, line 1), or which specified moral messages available to be read in the Book of Nature (p. 56, lines 24–34).<sup>5</sup> Yet, despite the fact that Boyle was at this time doing chemical work in his Stalbridge laboratory,<sup>6</sup> there is precious little in these essays that speaks to an identification with natural philosophical or natural historical culture. Neither at age eighteen nor at twenty-three did Boyle evidently know what we think we know: that he was going to be a scientist.

There is nothing inherently wrong about assessing earlier life-stages in terms of later developments. We can always ask how an individual got from stage *a* to stage *b*, just as the Darwinian evolutionist can inspect fossil *Australopithecus* as part of inquiries into the origins of *Homo sapiens*, but there are some seldom-acknowledged contingent risks of so doing. In so far as we make out a mature state as the 'realization' of some earlier laid-down pattern, or as the response to some earlier trauma, influence or problem, we buy into some highly contestable psychological theorizing. The issue here is not mono- versus multi-causal explanation, though special problems are, no doubt, associated with the former. It is, instead, about the sufficiency of any account of an individual at one time in explaining his transition to a future state. The risk of 'realization stories' is that they belong to a genre which tends to treat personal development as a process taking place within an individual's competence rather than as the complex continual flux of transactions between individual and setting. And if all we do is to search the individual at time *n* for the traces of his constitution at time *n* + 1, we rule out or restrict a substantive role for circumstance and

<sup>5</sup> Jacob, Boyle, op. cit. (1), 76–8, 112.

<sup>6</sup> Historians ought not automatically to equate the possession of, and work in, an early modern chemical laboratory with 'natural philosophical' commitments. It was not uncommon for mid-century gentlemen (and gentlewomen) to have a laboratory or still-house for the preparation of medicines and distilled spirits, and we know that the hypochondriacal Boyle had as an adolescent developed an interest in medical receipts, self-medication, and the provision of more effective medicines to the people. In the event, mid-seventeenth-century culture importantly distinguished between the practices called 'chymistry' and 'natural philosophy'.

contingency in personal development.<sup>7</sup> Think how many times your own life has been changed by an unpredictable happening or meeting. Think also about the moral context in which we may invest so much labour in translating the unpredictable and the environmental into an aspect of our intrinsic pattern of personal development. It sounds so much finer to say that I always wanted to be the kind of academic I am now than it does to acknowledge the role of fortune in securing a certain job and the role of colleagues in shaping my cultural environment. We tell ‘realization stories’ about ourselves, and those who approve of us help us tell them, as a way of stressing the intrinsic springs of our actions and as a way of pouring value on those actions. Because such narratives are storehouses of value, their plausibilities are highly protected by a wide range of everyday and academic practices. Yet, from a more disinterested point of view, ‘realization stories’ are no more plausible than those which point to causally effective interactions between individual development and setting.

In the present case, I want to say that we *still* do not know, and may never securely know, *why* Boyle became a ‘natural philosopher’. Harwood notes that there is no evidence from Boyle’s childhood or early adolescence that indicates ‘a special interest or aptitude for natural philosophy’ (p. xxiii). What we know of his dealings with the Hartlib circle from the mid-1640s still seems insufficient to motivate a ‘choice’ that evidently was not made until, at the earliest, the mid- to late 1650s; and evidence from his early Oxford period (from *c.* 1655) when he first entered academic philosophers’ everyday society is unsatisfactorily patchy. Moreover, there are good substantive reasons to be sceptical of interpretations that causally link Boyle’s scientific views too tightly to any early patterns or circumstances, whether of temperament, parental or collegial influence, or political context.

‘Realization’ stories are made still more problematic if we proceed ahistorically in defining ‘what the individual was’ at time  $n+1$ . Indeed, even the notion that Boyle ‘became a natural philosopher’ is debatable on historicist grounds. Boyle continued to publish moral and theological tracts to the end of his life, and into the eighteenth century he enjoyed a substantial reputation as a moralist. The funeral sermon preached by his friend the Rev. Gilbert Burnet eulogized Boyle as ‘a Christian Philosopher’, celebrating his personal piety and religious good works, assimilating his general learning, medical and chemical researches to devotional and philanthropic purposes, and passing over what we recognize as his natural philosophical projects almost as an aside. Technically speaking, Burnet’s sermon in fact *never* referred to Boyle as a ‘natural philosopher’: the relevant passages catalogued the range of his *knowledge* – of Hebrew and other oriental languages, scripture and theology, the ‘mathematical sciences’, geography, physic, ‘the history of nature, ancient and modern’, and chemistry (‘his peculiar and favourite study’).<sup>8</sup>

<sup>7</sup> Here I allude to important work on personal development by the sociologist Howard S. Becker the significance of which for the genre of intellectual biography has yet to be adequately recognized: ‘Notes on the concept of commitment’, *American Journal of Sociology* (1960), 66, 32–40; ‘Personal change in adult life’, *Sociometry* (1964), 27, 40–53 (both reprinted in Becker, *Sociological Work: Method and Substance*, Chicago: Aldine, 1970).

<sup>8</sup> Gilbert Burnet, ‘Character of a Christian Philosopher, in a Sermon Preached January 7, 1691–2, at the Funeral of the Hon. Robert Boyle’, in *idem*, *Lives, Characters, and An Address to Posterity* (ed. John Jebb), London: James Duncan, 1833, 325–76, quoting 368–70.

Moreover, the pattern of the 'Christian Virtuoso' which Boyle both exemplified and offered for emulation was *not* simply that of a 'natural philosopher' but of a special kind of religiously inspired person who could participate in, and appropriate resources from, a wide range of cultural practices, including natural philosophy, in his whole-hearted pursuit of virtue. An important, much insisted upon and widely acknowledged, aspect of Boyle's public character throughout his life was that neither his identity nor his life-project was to be circumscribed by the interests or conventions of any such specialized cultural practices as chemistry, medicine, theology or natural philosophy. The role of the Christian virtuoso might encompass that of a natural philosopher, but it was not co-extensive with any version of that role.<sup>9</sup>

Despite the wealth of manuscript and textual material which we now have available, developmental inquiries into Boyle's life and work will likely remain beset by a range of practical difficulties. Harwood himself situates the interest of these early ethical essays within a broadly developmental rubric, seeking to make 'accessible the intellectual and religious origins of Boyle's most vital *themata*'. These writings 'disclose intellectual questions, patterns of interest, habits of mind, and ... methods of expression that persisted into and perhaps shaped later writing' (p. xvii). There is no doubt about that persistence. Publications to the end of Boyle's life liberally drew upon findings, drafts, and even precise turns of phrase which he produced when he was still a very young man at Stalbridge. Prefaces to Boyle's mature publications commonly specified that this was the case and recruited that circumstance for important expository functions. It was, more than anything, a device Boyle employed publicly to disengage his self from the views presented in his texts, and thus to achieve a more disinterested appearance than that available to any mere fame-seeking author whose present self stood behind and vouched for current textual claims. Indeed, Boyle willingly and repeatedly stipulated the chronologically and structurally incoherent nature of his texts, and even, to an extent, the possible invalidity of certain claims contained therein.<sup>10</sup> These were, after all, publications designed to serve *alter* rather than to glorify *ego*. Too much concern for coherence and exactness bespoke a proud quest for authorial fame.<sup>11</sup> For the historian interested in personal development, both the technical incoherence of Boyle's texts and the apologetically identified possible mismatch between text and current belief present enormous problems. What we *know* is that Boyle continued to find many youthful turns of phrase and formulae of his early ethical essays useful resources for later publications. What we cannot know, with similar certainty, is that whatever states of belief may have animated them in the 1640s 'persisted'

9 I develop this interpretation of Boyle's identity in a chapter entitled 'Who was Robert Boyle? The creation and presentation of an experimental self' in my forthcoming book *A Social History of Truth: Gentility, Credibility, and Scientific Knowledge in Seventeenth-Century England*, Chicago: University of Chicago Press, 1994, ch. 4.

10 See, for example, Boyle, 'Usefulness of experimental natural philosophy', in Boyle, *Works*, ed. Thomas Birch, 6 vols., London, 1772, ii, 1–246, on 4; idem, 'Medicina hydrostatica', *ibid.*, v, 453–89, on 454.

11 In work to be published, Harwood has sought to display Boyle's possible interest in authorial celebrity: John T. Harwood, 'Science Writing and Writing Science: Robert Boyle and Rhetorical Theory', paper given to The Stalbridge Boyle Symposium, 14–16 December 1991. Of course, a 'real' concern for fame is perfectly compatible with textual strategies designed to deny it (in my humble opinion).



into his maturity or that these early sentiments ‘shaped later writing’ in any but a loose sense. That, I think, would be to over-interpret early writings as developmentally potent, to grant too much to early life and too little to later.

For the present, it is enough to deflect some attention away from these early essays as signs of later scientific development and towards the genre to which they unquestionably belong: they are eclectic surveys and collations of ethical and theological views already richly represented *in the culture*. As Harwood reminds us, Boyle ‘began his career as a moralist, not as a natural philosopher’ (p. xviii). When, in 1650, he drew up a list of ‘treatises’ completed or in-progress, that catalogue was overwhelmingly moral and theological in character (pp. xix–xx). The greatest service performed by Harwood’s excellent introductory essay and annotations is, indeed, the identification of the textual sources from which Boyle’s early ethical writings derived. Just as many seventeenth-century English Protestants kept diaries which acted as a form of self-discipline and which recorded their ceaseless interrogations of self, so this was also the great age of the commonplace book. Very many English gentlemen kept commonplace books in which they collected together noteworthy dicta, proverbs, exemplars, and emblems from classical or modern authors and which they might then draw upon repeatedly in the civil conversations of later life. Such uses created and sustained a market for printed collections from which commonplace books might be more effectively compiled. And, to complete the circle, many published ethical texts were fundamentally structured through the rearrangement and resituation of the contents of personal commonplace books.<sup>12</sup> The view that legitimate authorship was constituted by and through exercises of ‘originality’ was by no means standard in sixteenth- and seventeenth-century England. Nor was it necessarily considered that the ceaseless appropriation and reworking of pre-existing culture was in any significant sense illegitimate. This was a culture, unlike our own, which acknowledged the value of synthetic play with existing materials.

Anyone familiar with early modern ethical writing is, therefore, thoroughly accustomed to a vague, or, if sufficiently learned, a specific sense of *déjà vu*: ‘where have I read this before?’ In the case of Boyle’s *Aretology* and related ethical essays, Harwood has a quite specific answer to offer: the young Boyle’s work was overwhelmingly drawn from a massive *Encyclopædia* (1630) by the Herborn professor of philosophy and theology Johann Alsted (1588–1638).<sup>13</sup> Like a host of other early modern gentlemen, and especially those who had not been to university, Boyle got much of his learning at second-hand. Thus, the *Nichomachean Ethics* was of central importance for all early modern ethical writers – Boyle included – but Harwood finds little evidence of Boyle’s first-hand familiarity with

12 I owe recognition of the significance of commonplace books in early modern natural philosophy partly to Ann Blair, ‘Humanist methods of natural philosophy: the commonplace book’, *Journal of the History of Ideas* (1992), 53, 541–51; see also Anthony Grafton and Lisa Jardine, *From Humanism to the Humanities: Education and the Liberal Arts in Fifteenth- and Sixteenth-Century Europe*, Cambridge, Mass.: Harvard University Press, 1986, chs. 6–7.

13 Alsted was a Protestant reformer who sought to change society through a revamped programme of moral education. He taught Comenius, who developed some of his educational views, and, for that reason alone, was doubtless found congenial by the Hartlib circle whose members may have pressed the *Encyclopædia* into Boyle’s hands.

Greek or Latin moral philosophy (pp. xxix, xxxv–xxxvi).<sup>14</sup> Indeed, Harwood argues forcefully for the view that Boyle's early ethical writings were pervasively shaped by Alsted's *Encyclopedia* – in topical content, in organization, in rhetorical form and aim, and, substantially, in their conceptual posture *vis-à-vis* the relations between knowledge and virtue.

Harwood's argument for the particular cultural resources out of which these early essays were developed is powerfully supported. As he justifiably points out, Alsted has not previously been mentioned in connection with Boyle's intellectual development. While Boyle referred to him by name in *The Aretology* (p. 54), neither Maddison's biography nor Jacob's contextual interpretation alluded to Alsted, nor are there any references to him in Thomas Birch's mid-eighteenth-century edition of Boyle's works. Yet, for all the persuasiveness of Harwood's scholarship, it remains unclear how this claim stands with respect to previous interpretations of Boyle's intellectual development, and still more unclear how claims of this general sort bear upon the practice of intellectual biography. Charles Webster, for example, argued for the special importance of the Interregnum Hartlib circle in the development of Boyle's Restoration philosophical and moral views, and Nicholas Canny has pressed a related case for the influence of the concerns of an Anglo-Irish circle embracing the Boate brothers and members of Boyle's own family, notably including his father.<sup>15</sup> Harwood sees merit in both these positions, judging them 'plausible and easily reconciled'. In contrast, he finds James Jacob's interpretation 'far more problematic' (p. xxiii). And, since much interest among historians of the Scientific Revolution has centred upon the legitimacy of Jacob's account of the 'ideological origins' of Boyle's natural philosophy, it is worth dwelling upon both the evidential and methodological bases of Harwood's dissent.<sup>16</sup>

Of Harwood's scepticism there can be little doubt, even if it is expressed in terms so civil as to be allusive. First, he criticizes Jacob for incautious inference: Jacob's thesis is said to be 'broader than his evidence warrants' (p. xxiii). Secondly, Jacob is apparently censured for emphasizing one set of historical factors – the traumatic political circumstances of the Irish Rebellion and Interregnum disorder – at the expense of another set – the general equipment with which 'people like Boyle' came provided and the special resources supplied by Alsted. Thirdly, Harwood obliquely suggests that interpretations such as Jacob's have either unjustifiably assumed or over-argued the originality of these early writings. The sources upon which Boyle drew, and which he reworked in *The Aretology*, 'would have been familiar to educated young men of his generation', as would have been

<sup>14</sup> Boyle was again not alone in also relying heavily upon Diogenes Laërtius's *Lives*. Much of his knowledge of early Christian theological texts was drawn from modern commentators, but he took in the great Protestant theologians and moralists at first hand, and, of course, was very deeply read in the Scriptures. Harwood also makes an important general case for Boyle's use of work by Sir Thomas Browne and such contemporary Christian writers as Thomas Wright, Henry Hammond, and the poets Edmund Waller, George Wither, Francis Quarles and George Herbert.

<sup>15</sup> Charles Webster, *The Great Instauration: Science, Medicine, and Reform, 1626–1660*, London: Duckworth, 1975; Nicholas Canny, *The Upstart Earl: A Study of the Social and Mental World of Richard Boyle First Earl of Cork 1666–1643*, Cambridge: Cambridge University Press, 1982, especially ch. 7.

<sup>16</sup> The passages which Harwood here particularly opposes are in Jacob, *Boyle*, op. cit. (1), ch. 2, especially 47–50.



his biblicism, irenicism, personal piety and providentialism. Consequently, Harwood questions Jacob's stress upon a secular traditional 'aristocratic ethic' from which Boyle was supposed to have developed an importantly original dissent (pp. xxiii–xxiv).<sup>17</sup>

Harwood's first criticism of Jacob must, I think, simply be conceded: thanks to Harwood's own research all of us now understand vastly more about Boyle's intellectual formation than we knew before, even if he is perhaps less than generous in acknowledging the pioneering focus of Jacob's 1977 book, without which one can hardly imagine that a substantial present-day audience for an edition of Boyle's early ethical writings would have come into being. Given the vigorously diverse interest in Boyle and the English Scientific Revolution these days, it is difficult to recall the extent to which this area of research appeared as a completed culture in the late 1970s, especially resistant to the scrutiny of the social historian or sociologist. James Jacob is one of the scholars we have to thank for the changed state of affairs. Fifteen years is a long time in our field, but it is not so long as to justify forgetting.<sup>18</sup>

The remainder of Harwood's criticisms raises questions of more general historiographic interest. The centrepiece of Jacob's 'social' interpretation of Boyle's natural philosophy was a conjuncture between an individual's interest and specific events in the political context: Boyle's concern to protect the security of his own property-rights and the threats posed to general property-rights by the Irish Rebellion and Civil Wars. Out of this conjuncture, Jacob argued, flowed a new and particular philosophy of nature, whose shape and content were crafted to acquit interest and solve contextual problems. And, of course, viewing *The Aretology* and similar youthful writings as responses to Boyle's specific political circumstances, as well as the developmental foundations of his mature individual philosophy, was central to Jacob's ideological origins story. In fact, for many years it seemed that the exercise of identifying such conjunctures *defined* the social history (or sociological history) of science. In opposing Jacob's interpretation, Harwood juxtaposes the factors of cultural inheritance to those of the interest-context conjuncture. Moves of this kind are historiographically familiar. Stress upon the continuity of culture as opposed to the exigencies of context is a standard form in which 'internalist–externalist' arguments

17 Harwood (p. xli, n. 45) criticizes Jacob (though on grounds that are never made explicit) for 'attach[ing] far too much weight' to another early Boyle practical ethical manuscript: *The Gentleman* (Boyle Papers Vol. 37, fols. 160–3). This is important evidence in Jacob's argument (Boyle, op. cit. (1), 48–9) in favour of Boyle's development from an early endorsement of a traditional aristocratic ethic (undeniably represented in *The Gentleman*) to the Christian humanism of the allegedly later *Aretology*. (My own view is that all these early essays are basically synthetic experiments in forging a plausible identity and that it is therefore dubious either to interpret any of them as representing Boyle's 'real belief' or to arrange them confidently in a developmental sequence.) Nevertheless, my one regret about Harwood's selection is that *The Gentleman* was not included. More than any other early manuscript this fragment manifests Boyle's engagement with the practical early modern 'courtesy' literature and its views of the proper bases and circumstances of gentility. Quite as much as the loftier Christian humanist canon to which Harwood rightly draws attention, the courtesy literature was also a standard part of a seventeenth-century gentleman's cultural furnishing: see, e.g., Steven Shapin, "'A scholar and a gentleman': the problematic identity of the scientific practitioner in early modern England', *History of Science* (1991), 29, 279–327, especially 289–92; and, for a modern interpretation of the courtesy genre, Frank Whigham, *Ambition and Privilege: The Social Tropes of Elizabethan Courtesy Theory*, Berkeley: University of California Press, 1984.

18 I have several times acknowledged the inspiration James Jacob provided for my own research, and if, at times, my more recent work in this area has diverged from Jacob's in focus and substance, that work would scarcely have been possible without his efforts and, especially, his vigorously provocative presentation.

have been carried on for generations. The continuity of culture has been taken as an argument for its autonomy or self-direction while breaks in the culture have been treated as evidence for the influence of extrinsic factors.<sup>19</sup>

It is a juxtaposition as insupportable as it is familiar. Why ever should the facts of cultural continuity be thought to embarrass the sociologist, one of whose stocks-in-trade is, after all, the identification and interpretation of the institutions of socialization and cultural transmission? And what are the grounds upon which a historiographic choice is pressed to decide between two equally plausible stories: that an individual is a competent bearer of the culture transmitted to him, and that his life and work represent a unique trajectory between culture and circumstance? Here and elsewhere language of 'factors' shows signs of strain. Nevertheless, Harwood's emphasis upon Boyle's manipulation of a quite typical cultural inheritance is particularly salutary in the present state of intellectual biography.

Imagine you are listening to a piece of late eighteenth-century sacred choral music. It is the *Agnus dei*: the alto sings plaintive pianissimo descending thirds in G minor; the violas and oboes double the alto for four bars; then, out of the silence of a one-bar pause, suddenly four blows on the timpani and an exultant fortissimo orchestral tutti in E flat. You hear, and the programme notes encourage you to hear, an ingenious, original and deeply felt realization of Christ's blood-sacrifice. There is even some plausible theorizing about this passage as an expression of the composer's own sense of impending death. You are profoundly moved to religious sentiments and awe of musical genius. Some time later you listen to an earlier opera by another composer. The scene is one of seduction, submission and sexual triumph. Music and purpose work splendidly together. The music is the same as for the *Agnus dei*, or very nearly so, and here the concert programme confirms that, indeed, the later composer reworked this music for his sacred setting. Your reaction is plausibly a tincture of embarrassment and cynicism: your first reaction was somehow secured by a trick; the later composer was not perhaps the genius you were told that he was. What belonged to him alone and to the unique expressive musical context he created seems in fact to have belonged to the culture. You think you should not have heard the later passage as a purposefully ingenious solution to a particular expressive problem: the composer was just going on as competent practitioners in that culture tended to go on in a range of circumstances. His creativity consisted 'only' in the rearrangement and resituation of existing cultural materials. Mark him down. Moral, aesthetic and intellectual judgments run together with apparently divergent stories about historical development: the one stressing the role of individual intelligence in making-up culture and uniquely adapting that culture to individual ends, the other identifying the appropriation and reworking of previously used, culturally given resources.

The musical analogy may be stretched and overly vivid, but it is not inappropriate to the Boylean materials under discussion or to general reflections upon the genre of intellectual biography. Harwood encourages us to see the early ethical essays as the reworking of rather standard cultural materials, the problems confronting Boyle as similarly standard

19 An analysis and interpretation of the relevant historiography is Steven Shapin, 'Discipline and bounding: the history and sociology of science as seen through the externalism-internalism debate', *History of Science*, (1992), 30, 333-69.

ethical topics for people like Boyle. James Jacob, by contrast, has urged us to understand the same materials as the fruits of a unique individual conjuncture of interest and circumstance. In apparent paradox, Jacob's 'social' interpretation, though widely opposed by historians of a more traditional disposition, maps more easily than Harwood's onto judgements that emphasize what is usually taken as Boyle's deep originality. For Jacob that originality had different roots than for intellectualist historians, but it was no less individually innovative: the springs of new natural philosophy were to be sought in Boyle's 'social' predicament rather in his 'intellectual' problematic.

It is this finding that encourages us to recognize something curious about common models of personal development in intellectual biography and about usages of such terms as 'social' and 'intellectual'. Harwood evidently shares with more traditional historians of ideas a scepticism about 'social' interpretations, yet his claims about Boyle's development are, in fact, no less 'social' than Jacob's, and, arguably, they are *more* sociological. What could be more sociological than a claim that an individual worked with, and artfully reworked, the materials given by his culture? And what could be less sociological than a historiographic practice which slighted the role of cultural inheritance? The interesting and sustainable dichotomy is not, then, one between 'social' and 'intellectual' considerations but between interpretations that draw adequate attention to the role of existing culture in an individual's making of new culture and those that do not.

We may have to recognize that there is little that we can say with very great confidence about the domain of individual meanings and the causes of individual careers and creativity. Some versions of individualistic history, however routine in appearance, may simply be too speculative and too ambitious to yield the quality of knowledge often claimed for them. By contrast, apparently less orthodox sociologically informed approaches to individual lives may be more soundly based. Working with the visible materials provided by a past culture, the historian can identify, as it were, the 'space of possibilities' occupied by an individual at any given time.<sup>20</sup> That space can be conceived of as the resultant of what the local culture makes available and the individual's previous history. What moves are permissible or intelligible for an individual in a specific culture to make? How does each move affect the possibilities and probabilities of succeeding moves? To many accustomed to the bold psychological idiom of much intellectual biography, the project I suggest may seem depressingly limited. Yet there is no great loss in recognizing legitimate limits to certain forms of historical knowledge.

Individualism is not, therefore, the only way to interpret the doings of individuals. Much existing intellectual biography over-interprets what is owing to an individual and under-interprets what is owing to the culture. That practice is ultimately sustained by a network of *evaluations*. Both as historians and as commonsense actors we are the inheritors of a long-established practical moral philosophy that recognizes an association between

20 Here I sociologically mangle a notion from the psychologist Margaret A. Boden who develops the idea of a 'conceptual space' in a very different inquiry into individual creativity; see her *The Creative Mind: Myths and Mechanisms*, London: Weidenfeld and Nicolson, 1990, especially 46–9, 139–50, and also her, 'What is creativity?', unpublished paper delivered to the Achievement Project conference on 'The Measurement of Achievement', Ashford, Kent, 11–15 December 1991. I also acknowledge valuable *viva voce* comments by Jacques Revel on my 'Who was Robert Boyle?' (cited in note 9).

individuality, truth and value, on the one hand, and collectivity, convention and error, on the other. A portrayal of the isolated divine, artist or philosopher is a means persistently used in our culture to say 'good' about the producers of our most highly valued knowledge, just as the depiction of practitioners as embedded members of their society's culture is widely understood as denigration.<sup>21</sup> The pull of the association between individuality and epistemic value is powerful, yet it can be defied. And the most effective way of resisting it is to question the dichotomy which invites us normatively to choose between isolated knowers fabricating their culture out of thin air or individual circumstance and 'cultural dopes' doing nothing more than reflecting existing knowledge or social predicament.

This edition of Boyle's early writings comes at an opportune moment, both in the small world of Boyle studies and in the much larger world of intellectual biography. Just because the biographical genre is so well established within intellectual history, its reflective justification has been relatively undeveloped. Much biography has tended to import questionable psychological theories into history without noting that it has done so, while many sociologists have run fast in the other direction when asked to interpret the course of individual lives. More locally, it is certain that Harwood's edition will prompt further historical interest in the life and work of Robert Boyle. The publication of these materials arguably means that we now know as much about the early intellectual and moral views of Robert Boyle as we do about any other early modern man of science.<sup>22</sup> (And the indications are that, thanks to the industrious archival labours of Michael Hunter and his associates, we are soon to know much more.) These resources have already been pressed into service to answer developmental questions of the sort 'why did Boyle become a scientist?', and it is inevitable that they will be enlisted in many similar inquiries. I have tried here to argue that questions of this form are more problematic than they sometimes appear. I have suggested revised approaches to the genre of intellectual biography in which such materials are no less valuable, even if they have to be dealt with in a less self-contained fashion. And I have drawn attention to some interesting relationships between the way we understand personal development and persistent patterns of cultural evaluation.

STEVEN SHAPIN

*Department of Sociology and Science Studies Program,  
University of California, San Diego,  
9500 Gilman Drive,  
La Jolla,  
California 92093-0102,  
USA*

21 On this topic, see Steven Shapin, "'The mind is its own place': science and solitude in seventeenth-century England," *Science in Context* (1991), 4, 191–218.

22 Those of a psycho-sexuo-biographical bent will, no doubt, soon spot that the Boylean materials provide a far richer seam of the relevant naughty bits than the Newtonian sources exploited by Frank Manuel's *A Portrait of Isaac Newton*, Cambridge, Mass.: Harvard University Press, 1968.